Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

200. Proposed by F. P. MATZ, Sc. D., Ph. D., Professor of Mathematics and Astronomy in Defiance College, Defiance, O.

No matter what value x be given, the *numerical* value of the expression $(x+2)/(2x^2+3x+6)$ can never exceed $\frac{1}{3}$.

I. Solution by G. B. M. ZERR, A. M., Ph. D., Parsons, W. Va.

$(x+2)\,/\,(2x^2+3x+6)=1\,/\left(\frac{2x^2}{x+2}+3\right)$. The value of this fraction is greatest when $x=0$.

$\therefore (x+2)/(2x^2+3x+6)=\frac{1}{3}$ when $x=0$.

II. Solution by M. E. GRABER, A. M., Heidelberg University, Tiffin, Ohio.

Let $y=\dfrac{x+2}{2x^2+3x+6}$; then $\dfrac{dy}{dx}=\dfrac{(2x^2+3x+6)-4x^2-11x-6}{(2x^2+3x+6)^2}$.

Placing $dy/dx=0$ and solving we get $x=0,-4$. By considering the second derivative it is shown that $x=0$ corresponds to a maximum; substituting this value in y, we find $(y)_0=\frac{1}{3}$.

Also solved by L. E. Newcomb, Los Gatos, Cal.

201. Proposed by H. B. LEONARD, B. S., Graduate Student, The University of Chicago.

Solve by quadratics: $x+y+xy=75$; $x^2-y^2=315$.

Solution by G. B. M. ZERR, A. M., Ph. D., Parsons, W. Va.

The second equation may be written

$$x^2-y^2=324-9, \text{ or } y^2-9=x^2-324,$$

and therefore $y-3=\dfrac{x^2}{y+3}-\dfrac{324}{y+3}$. Also $y=\dfrac{75}{1+x}-\dfrac{x}{1+x}$, or $y-3=\dfrac{72}{1+x}-\dfrac{4x}{1+x}$. $\therefore x^2+4x\left(\dfrac{y+3}{1+x}\right)=324+72\left(\dfrac{y+3}{1+x}\right)$. Let $\dfrac{y+3}{1+x}=t$.

$$\therefore x^2+4tx=324+72t,$$

$$x^2+4tx+4t^2=324+72t+4t^2,$$

$$x+2t=18+2t,\quad x=18,\quad y=3.$$

The other values of x and y cannot be found by quadratics.*

GEOMETRY.

226. Proposed by W. J. GREENSTREET, A. M., Editor of The Mathematical Gazette, Stroud, England.

The triangles ABC, $A'B'C'$ are in plane perspective, and the corresponding sides BC, $B'C'$, ..., cut in P, Q, R, respectively. AA', ..., cut the line PQR in $P'Q'R'$, respectively. Show that (PP', QQ', RR') is an involution range.

No solution has been received.

---

*Eliminating y between the two given equations and dividing by $x-18$ there results $x^3+20x^2+45x+330=0$. The remaining values of x are therefore obtainable from the solution of this cubic. ED.